Research Proposal of the Thesis Entitled

Evaluation of impact of oral health education on 6 to12 years children in Gandhinagar district orphanages

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By

Dr.Chhaya Patel

Reader

Department of Pediatric and preventive Dentistry

Karnavati School of Dentistry, Karnavati University

Under The Guidance

Of

Dr. Nandita Sanghani

Associate professor, Department of physiology and biochemistry,

Karnavati School of Dentistry, Karnavati University,

Submitted to

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INTRODUCTION

The socially and economically disadvantaged individuals known as orphans are those who have lost both of their parents. They have received sympathy, been shunned by the community, ignored, verbally attacked, and even mocked[1]. With an estimated 1.2 billion people, India is the second most populous nation on earth. Although the precise number of orphans is unknown, but as per available data almost 2 million orphans residing in India[1].

There are significant differences in oral health status between various socioeconomic groups. The way people live in orphanages is very different from how people live in families since families give food, shelter, and physical security but not psychological stability[2].

A person's total health, which affects their quality of life and sense of wellbeing, includes their oral health. It is a crucial component of every child's wellness. Being an orphan is one of the most significant risk factors for having poor oral health since these kids rarely have the chance to acquire dental care[3].

Orphanage children have a higher prevalence of dental trauma, gingivitis, and caries. Overcrowding, a lack of staff, poor dental hygiene, and an inadequate diet have all been blamed. As Oral health is a mirror of general health, need to work smart to ensure that these underprivileged children have the best oral health possible.[4] Knowledge is basically derived from information. When information is believed, it will come into an action and the repeated action will become a good habit. However, the relationship between knowledge and habit is only tenuous. Some studies have found a link between increased knowledge and better oral health.[5]

Instilling good oral health knowledge and behavior in society is the main goal of oral health educators. Giving patients pertinent information and increasing their awareness of oral disease prevention is the first step in developing a habit[6]. Due to the scarcity of published literature demonstrating the efficacy of oral health promotion programmes and the lack of established dental health education programmes for orphanages, we investigated the viability of using caretakers to promote oral hygiene among orphan children. As a result, the current study aims to evaluate and compare the efficacy of dental health education provided to children by carers and dental professionals.

AIM

Analyze and contrast the effectiveness of dental health education provided to orphanage children by caregivers and that provided by dental professionals.

OBJECTIVES

1. To ascertain the caries incidence among orphanage children.
2. To determine the oral hygiene index (OHI) and the number of decaying, missing, and filled teeth (DMFT, DMFT) among orphanage children.
3. Analyze the frequency of brushing
4. Impact of oral health education on overall oral health.

NULL HYPOTHESIS

Dental health education provided by caregivers and dental professionals to orphanage children will make no difference in outcome of their oral health.

REVIEW OF LITERATURE

1. Vrinda Saxena et.al.,2015[7] evaluated how well orphanages used the peer group model for oral health promotion and education. In two phases, they conducted a research among orphans living in Bhopal city who were between the ages of 11 and 17. The certified gingival index and plaque index were assessed, and data regarding the orphans' knowledge, attitudes toward oral hygiene, and oral hygiene habits were gathered in the first phase. All caregivers and attendees received oral health education throughout phase 2, with a focus on proper dental hygiene techniques. Then, following a 3-month period, the corresponding indices, knowledge, attitude, and practises for orphanage children were examined, and a pre- and post-analysis using statistical analysis was carried out. The average gingival score was 1.37 0.41. The authors claim that it was frequently necessary to observe the oral hygiene practises of orphanage children and to teach their peers how to encourage good oral hygiene among one another.

2. Aasim F Shah, 2016[8] et. al. There is evidence that children's general and dental health are affected by their families' absence. At any particular time, factors that contribute to the onset of disease are likely to have their origins in a complicated cascade of environmental occurrences that may have started years earlier. Numerous research that looked at the connection between tooth caries and material deprivation discovered a strong correlation between the two. Despite making up 2% of the global population, there is virtually little research on the state of orphans' dental health. This study was conducted to evaluate the dental caries status of Jammu and Kashmirese institutionalised orphan children.

3. Ravi thetakala et.al.,2017[9] examined the dental and periodontal health of orphans and kids with parents in Mysore, India. They conducted a cross-sectional study with children aged six to fifteen who were housed in eight orphanages. From government schools (non-orphans) in the same geographic locations, an equal number of children of the same age and gender living with parents were chosen for comparison. One trained, calibrated examiner performed the clinical examination, and the oral findings were documented in accordance with the 2013 World Health Organization (WHO) diagnostic criteria. The data collected was analysed using Mann–Whitney U test and Chi-square test. A total of 957 children (478 from orphanages and 479 from government schools) were examined in the study. The mean defs and DMFS were significantly higher among government school children (non-orphans) compared to children from orphanages. Prevalence of gingival bleeding among orphans (79.49%) was higher compared to non-orphans (71.4%). They concluded that prevalence of caries was lower among orphans but periodontal status was poor among them as compared to non-orphans.
4. Bradley Christian et. al.,2019[10] undertook the Health in Orphanages Project, an epidemiological research of dental caries and related variables in kids living in orphanages in Kerala, India (HOPe). The World Health Organization (WHO) criteria were used to assess caries, and the results were reported as decaying, missing, and filled primary or secondary teeth (dmft or DMFT, respectively). Information on children's oral health behaviours was gathered through a short questionnaire. Caries rates were described using mean [standard deviation (SD)] and median [interquartile range (IQR)] scores. In total, 31 orphanages in the State of Kerala housed 1,137 children who were recruited for the study. 82% of the sample was made up of female

kids.In 6-year-old children the prevalence of caries was 77% and the mean dmft score was 3.60 (SD= 3.50); in 12-year-old children the prevalence of caries was 44% and the mean DMFT score was 1.35 (SD = 1.96). Among 12-year-old children, those who reported being shown how to clean their teeth were less likely to have caries (odds ratio = 0.62; 95% confidence interval: 0.38–0.95). They concluded that the caries rates among children in orphanages were much higher than among children in the general population in Kerala. There is an urgent need for evidence-based and sustainable primary prevention strategies to reduce the burden of caries in this highly vulnerable population.

5. G. Kavayashree et.al.,2019[11] evaluated the condition of the children's dental health who were housed in orphanages in Hassan, India. Children without parents aged 6 to 14 were selected from government-run orphanages for this descriptive cross-sectional study. The participation of kids was allowed. A single investigator looked over every kid. On an upright chair with sufficient natural light, each youngster was examined. P 0.05 was regarded as statistically significant when analysing the data using the Student's t test using the SPSS programme 19.0. The mean oral hygiene score was 1.32 0.69 for men and 0.89 0.80 for women (P = 0.006). It was not statistically significant to compare the mean gingival index score between males and females (P = 0.160). On comparison of mean gingival index score between males and females, it was not statistically significant (P = 0.160). The dental caries prevalence in primary and permanent dentition was 26.21% and 23.07%, respectively. Authors concluded that the oral hygiene status and gingival health status of the orphan children were good. The prevalence of dental trauma and dental caries was low among them.

6. Saeedeh Abedassar[12] et.al.,2020 assessed the oral health and oral hygiene practises of the orphans staying in the care facility. All orphan care home residents between the ages of 6 and 18 were invited to participate in the study after obtaining legal clearance and signing a consent form. A trained dentist used WHO oral health basic survey methods to collect data on dental caries, gingival health, and oral hygiene factors. To accomplish the goals of the study, a descriptive analysis was conducted. A total of 356 kids participated, with 50.6% of the group being female. Participants in the study were split into two age groups: 6 to 12 and 13 to 18. In children aged 6 to 12, the mean DMFT/DMFT was 1.73 1.84 and 4.13 3.80. Only 39.5% of children aged 12 to

18 have healthy gums. The mean plaque index for the entire study cohort was 0.98 0.86. Gender, plaque index, and teeth brushing habits all had a significant association. They came to the conclusion that orphan children's oral health is inadequate. Therefore, it was essential to implement programmes for oral health education and routine dental check up.

METHODOLOGY

Research design and methods

Instrument and supplies

The following equipment and supplies were utilised in sufficient numbers:

1. plain-speaking mirrors
2. CPI probe: Community Periodontal Index
3. Tweezers
4. trays for diagnostic instruments
5. examination Gloves and Face mask
6. Cotton balls
7. Hankies made of cloth
8. Savlon solution (colours: tetrazine and sunset yellow FCF, chlorhexidine solution i.p. 1.5% v/v and strong cetrimide solution b.p. comparable to i.p. 3.0% v/w)

Details of examination

A single investigator would conduct a comprehensive clinical assessment of each orphanage. In order to reduce examiner variability, the investigator would be calibrated before to conducting the survey at the Department of Pedodontics and Preventive Dentistry under the supervision of a professor. To assist with the recording process during the study, a recording clerk would get training.

Method of examination

The type III examination method recommended by the American Dental Association (ADA) would be used: Each child would be evaluated in a suitable amount of natural light while sitting upright in a regular chair and using a mouth mirror and CPI probe. The young patient would be instructed to fully rinse their mouth before examination. To get rid of the

misleading effects of food particles and saliva, the teeth would subsequently be cleansed and dried using cotton rolls. To reduce error, only one examiner would perform the examination. Starting with the maxillary right quadrant's most posterior teeth, it would be done uniformly in a clockwise orientation.[13]

Scoring system

According to John C. Greene and Jack R. Vermillion scoring criteria for OHIS is

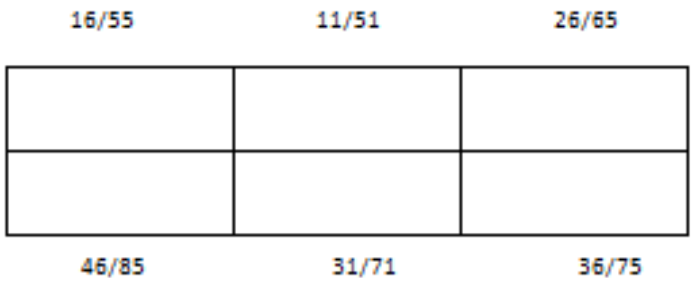
"Scoring criteria for DI-S

Score	Criteria
0	No debris or stain present
1	Soft debris covering not more than one third of the tooth surface, or presence of extrinsic stains without other debris regardless of surface area covered
2	Soft debris covering more than one third, but more than two thirds, of the exposed tooth surface.
3	Soft debris covering more than two thirds of the exposed tooth surface.

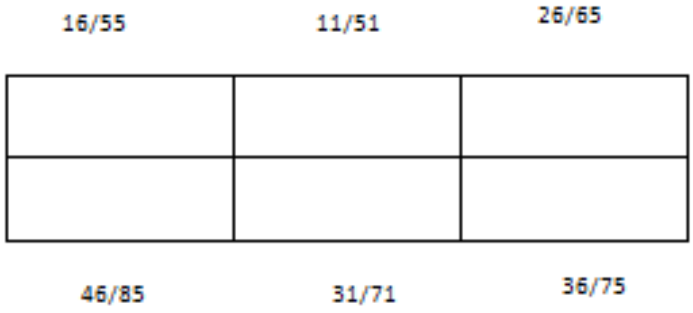
Scoring criteria for CI-S

Score	Criteria
0	No calculus present.
1	Supragingival calculus covering not more than one third of the exposed tooth surface.
2	Supragingival calculus covering not more than one third but not more than two third of the exposed tooth surface or the presence of individual calculus around the cervical portion of the tooth or both.
3	Supragingival calculus covering not more than two third of the exposed tooth surface or a continuous heavy band of subgingival calculus around the cervical portion of the tooth or both.

Debris score:



Calculus score:



The Simplified Calculus Index (SCI) and the Simplified Debris Index (DI-S) are its two components (CI-S). By running the side of an explorer along the tooth surface being evaluated, the surface area covered by debris can be estimated." (Green and Vermillion 1964)

Calculation of the index

Calculation of the DI-S score = Total score/No. of tooth surfaces examined

Calculation of the CI-S score = Total score/No. of tooth surfaces examined

So, Calculation of the OHI-S score = DI-S score + CI-S score

Interpretation for the OHI-S score :

0.0 to 1.2 = Good

1.3 to 3.0 = Fair

3.1 to 6.0 = Poor (John C. Greene and Jack R. Vermillion1964)

DMFT [15] (Permanent teeth index):

Klein, Palmer, and Knutson established the Decayed-Missing-Filled Index (DMF) in 1935, which was later modified by WHO. The DMF teeth index (DMFT) quantifies dental caries/teeth prevalence. The components are as follows:

"D component:

Used to describe (Decayed teeth) which include:

- Carious tooth.
- Filled tooth with recurrent decay.
- Only the root are left.
- Defect filling with caries.
- Temporary filling.
- Filled tooth surface with other surface decayed.

M component:

Used to describe (Missing teeth due to caries) other cases should be excluded these are:

- Tooth that extracted for reasons other than caries should be excluded, which include:

  a- Orthodontic treatment.

  b- Impaction.

  c- Periodontal disease.
- Unerupted teeth.
- Congenitally missing.
- Avulsion teeth due to trauma or accident.

F component:

Term used to describe (Filled teeth due to caries). When one or more permanent restorations were present and there was no secondary (recurrent) caries or other area of the tooth with primary caries, teeth were deemed filled without decay. This group included a tooth that had a crown fitted due of earlier decay. Teeth kept for reasons other than dental caries should be avoided, such as:Trauma (fracture).

- Hypoplasia (cosmetic purposes).
- Bridge abutment (retention).
- Seal a root canal due to trauma.
- Fissure sealant.
- Preventive filling.

Principle and rules in recoding DMFT:

- A tooth may have several restorations but it counted as one tooth, F.
- A tooth may have restoration on one surface and caries on the other, it should be counted as decayed D.

- No tooth must be counted more than once, D M F or sound.

deft (Primary teeth index)

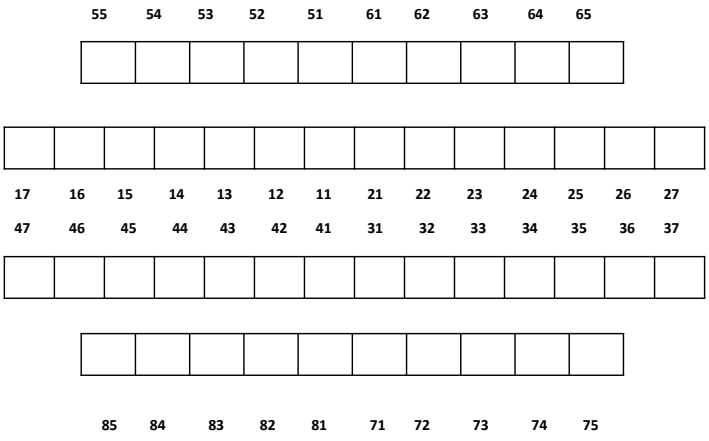
deft, which was introduced by Gruebbel in 1944.

d- decayed tooth .

e- decayed tooth indicated for extraction .

f- filled tooth.” (Klein, Palmer, and Knutson 1935)

Recording of DMFT and deft indices



d=	D=
e=	M=
f=	F=
Score= (d+e+f)	Score= (D+M+F)

A total of 360 orphanage-residing children between the ages of 6 and 12 will take part in the study. The head of the orphanage, who will be given comprehensive information on the study protocol, will be asked for their informed consent. The Institutional Ethical Committee would provide approval for this study's ethical conduct. The oral hygiene index-simplified (OHI-S) and its adaptation for deciduous dentition would be used to evaluate the baseline oral hygiene status of all pupils prior to any type of intervention. The OHI-S of the kids would be captured

using a set of autoclaved instruments. The caregivers would be instructed verbally and visually about dental health information and how to practice oral hygiene measures in order to reinforce the children. All children would get oral health instruction through multimedia and conversational means.

The students would be assigned into three groups at random:

Group 1: After the initial oral health instruction, these children would receive no more dental health education from their caregivers or dental practitioners.

Group 2: At 1, 3, and 9 months, trained carers will remind children about the importance of oral health and demonstrate proper brushing technique.

Group 3: At 1, 3, and 9 months, dental professionals will provide dental health information and demonstrate brushing procedures to these youngsters.

Using the same methodology and data collecting form, the same investigator would conduct the follow-up examination for the state of oral hygiene at 12-month intervals. The difference in oral hygiene status between the three groups will be analysed, and then it will be estimated how the children's oral hygiene habits have changed as a result of dental health education. A paired t-test and a one-way analysis of variance would be used to compare the mean OHI-S scores between the preliminary and follow-up exams in each group and between different groups (ANOVA).

ETHICAL ISSUES

- The confidentiality of the participants will be maintained and the information will not be disclosed to anyone.
- Participant will be allowed to leave this study anytime.

BENEFITS OF STUDY

The purpose of this study is to compare the effectiveness of recurrent and reinforced oral health education to one-time oral health education and to evaluate its role in dentist-led and caretaker-led oral health education programmes. If we discovered a substantial role for caregivers in children's oral health, subsequent initiatives can be developed with active engagement of caregivers/teachers in other institutes.

SPONSERS FOR THE STUDY

- No fund/sponsorship will be taken from any company/firm/institutions.

SOURCE OF FUNDS

- Funding will be done by the principal investigator herself.

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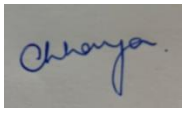
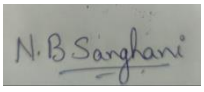


Signature Of Research Scholar



Signature Of Research Supervisor